AN EMPIRICAL EXPRESSION FOR LINE WIDTHS OF AMMONIA FROM FAR-INFRARED MEASUREMENTS, L, R, BROWN AND D. B. PETERSON

The hydrogen-broadened line widths of 116 $^{14}NH_3$ ground state transitions between J,K = 1,0 to 10,10 have been measured at 0.006 cm-' resolution using a Bruker spectrometer in the 40 to 210 cm-' region. These experimental data have been fitted to ± 3% using an heuristically derived expression of the form

$$\gamma = a_o + a_1 J + a_2 K - t a_3 J^2 + a_4 JK$$

where J and K are the lower state symmetric top quantum numbers, This function has also been applied to widths of 58 transitions near 3 μm reported by Pine et al. [J. Mol. Spectrosc. 50, 337-348, 1992). The percent differences between the observed and calculated widths are 5% or better for five foreign broadeners (N_2, O_2, Ar, H_2, and He]. For the self-broadening, the expression fails to reproduce the K = O data, and the rms rises to 11%.,

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Time required: 15 minutes

Session in paper is recommended for presentation: ME Infrared

Special request: please schedule this early Monday afternoon. I currently have a conflict that will force me to leave Monday evening.